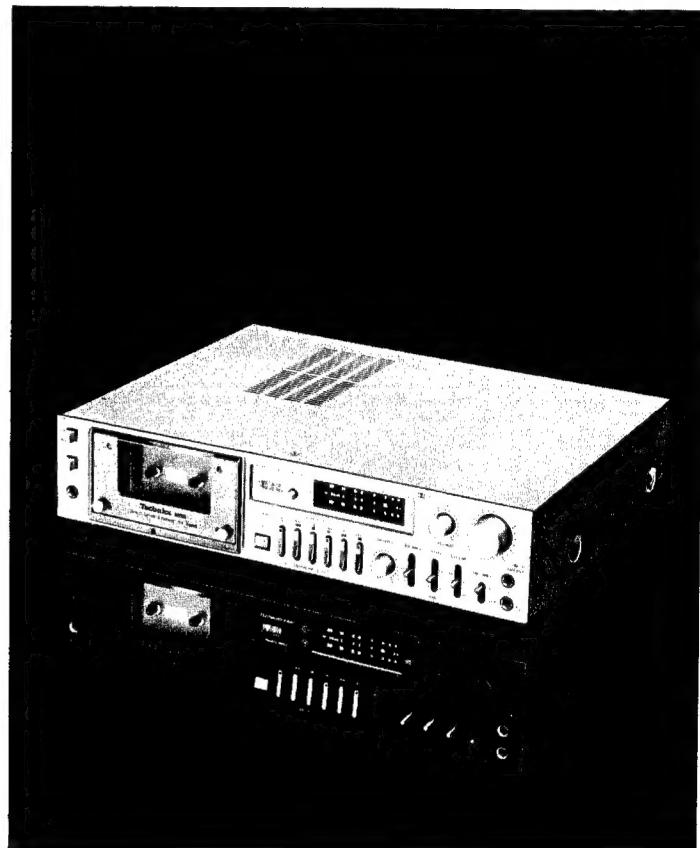


# Technics

TAPE DECK

## RS-M65

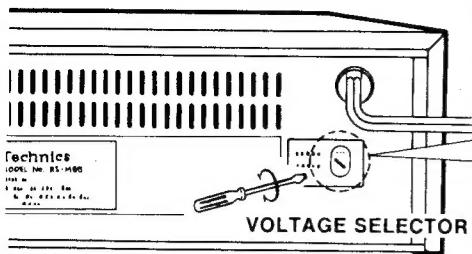
### OPERATING INSTRUCTIONS



Before operating this set, please read these instructions completely.

## 1

- VOLTAGE ADJUSTMENT
- SPÄNNINGSJUSTERING
- REGLAGE DU VOLTAGE



- REGOLAZIONE DEL VOLTAGGIO
- INSTELLING VAN DE NETSPANNING

- SETTING OF VOLTAGE SELECTOR
- INSTÄLLNING AV SPÄNNINGSVALJAREN
- REGLAGE DU SELECTEUR DE VOLTAGE
- REGOLAZIONE DEL SELETTORE DEL VOLTAGGIO
- STAND VAN DE NETSPANNINGS SELEKTOR
- SPÄNDINGSVÆLGERENS STILLING
- EINSTELLUNG DES SPANNUNGSWÄHLERS

- INDSTILLING AF SPÆNDINGEN
- EINSTELLEN DER SPANNUNG

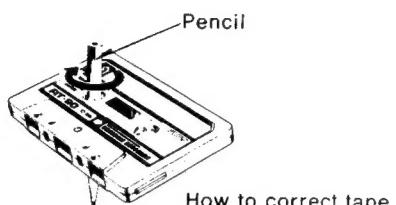
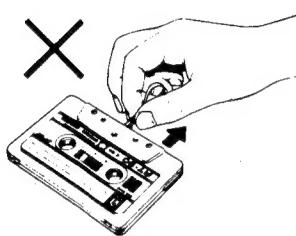
110V	125V	220V	240V
110V	125V	220V	240V
AC: 100, 105, 110, 115V	AC: 117, 120, 125V	AC: 200, 210, 220, 225V	AC: 230, 240, 250V
50-60 Hz	50-60 Hz	50-60 Hz	50-60 Hz

## 2

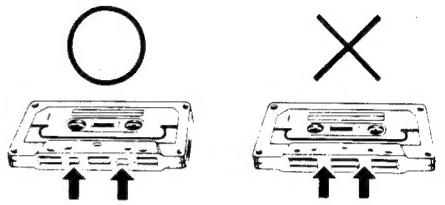
- ABOUT CASSETTE TAPE
- OM KASSETTBAND
- LES CASSETTES

- NOZIONI CIRCA LE CASSETTE
- KASSETTE BAND

- OM KASSETTEBÅND
- DIE CASSETTE



How to correct tape  
looseness.



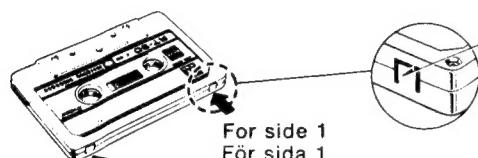
Use standard cassette. Do not use this type.

## 3

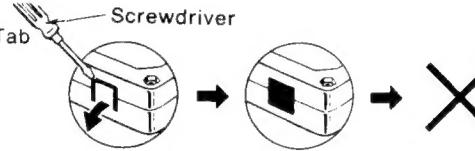
- ACCIDENTAL-ERASE PREVENTION
- SKYDD MOT OAVSIKTIG  
RADERING
- DISPOSITIF DE PREVENTION  
D'ENREGISTREMENT

- PREVENZIONE CANCELLAMENTO  
ACCIDENTALE
- VOORKOMEN VAN ABUSIEVELIJK  
UITWISSEN

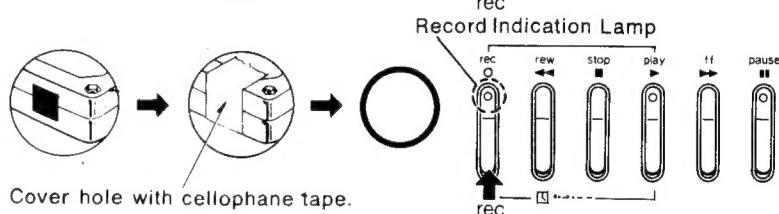
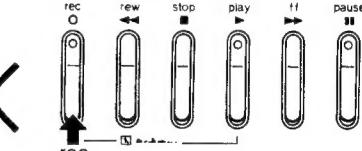
- BESKYTTELSE MOD SLETNING
- LÖSCHSCHUTZVORRICHTUNG



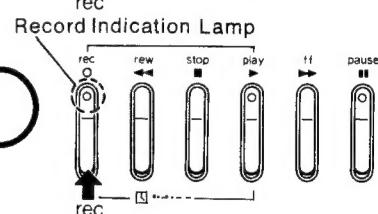
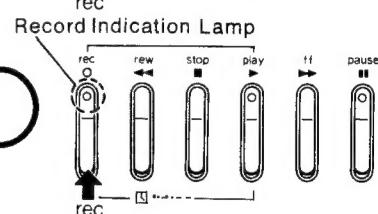
For side 1  
För sida 1  
Pour le côté 1  
Per il lato 1  
Voor kant 1  
Für Seite 1  
For side 2  
För sida 2  
Pour le côté 2  
Per il lato 2  
Voor kant 2  
Für Seite 2



For side 1  
För sida 1  
Pour le côté 1  
Per il lato 1  
Voor kant 1  
Für Seite 1  
For side 2  
För sida 2  
Pour le côté 2  
Per il lato 2  
Voor kant 2  
Für Seite 2



Cover hole with cellophane tape.

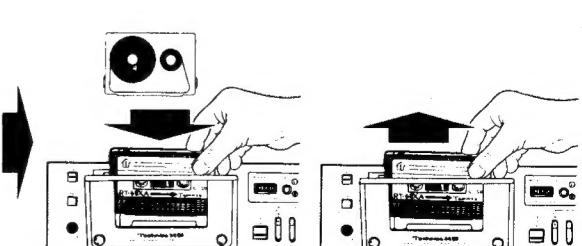
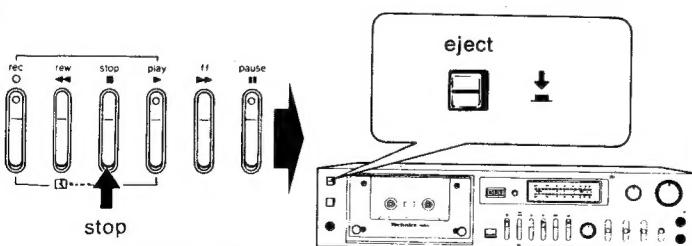


## 4

- CASSETTE INSERTION AND REMOVAL
- ILAGGNING OCH UTTAGNING AV KASSETTEN
- MISE EN PLACE ET ENLEVEMENT DES CASSETTES
- INSERZIONE ED ESPUSIONE DELLA CASSETTA

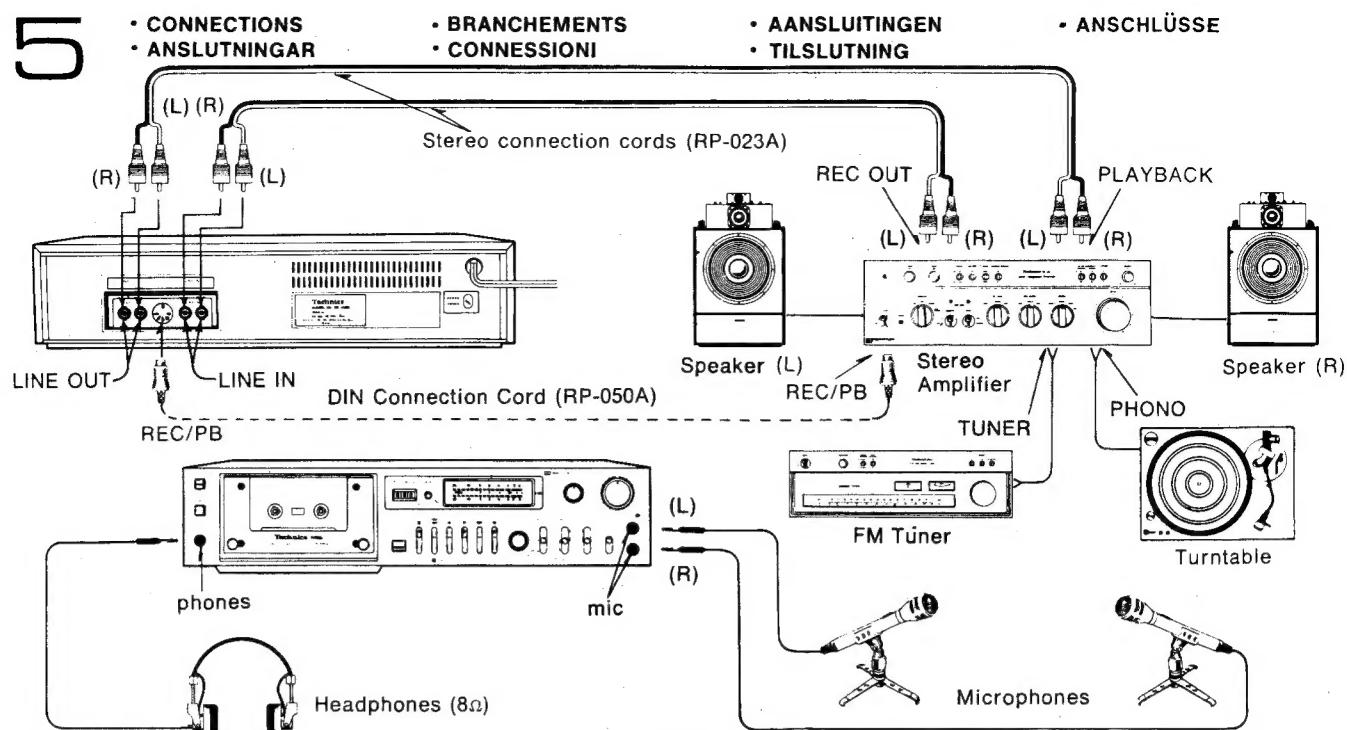
- CASSETTE INZETTEN EN UITNEMEN
- ISÆTNING OG UDTAGNING AV KASSETTEN
- EINLEGEN UND ENTNEHMEN DER CASSETTEN

## 1



\*'Dolby' and the double-D symbol are trademarks of Dolby Laboratories.

## 5



## 6

- TAPE SELECTOR SETTINGS FOR VARIOUS TAPES
- BANDVÄLJARENS LÄGE FÖR TYPER AV BAND
- POSITION DU SELECTEUR DE BANDE POUR DIFFERENTES BANDES
- POSIZIONI DEL SELETTORE DEL NASTRO PER I VARI TIPI DI NASTRO
- STANDEN VAN DE BANDSOORTSELECTOR VOOR VERSCHILLENDEN BANDSOORTEN
- INDSTILLING AF BÅNDVÆLGEREN FOR FORSKELLIGE BÅNDTYPER
- WAHLSCHALTERSTELLUNG FÜR VERSCHIEDENE BÄNDER

Tape Selector	Tape Brand	Tape Type
"normal"	Technics XD Technics LN BASF LH Super BASF SLH MAXELL UD MAXELL UDXL I SONY HF TDK SD	C-45, C-60, C-90 C-60, C-90 C-60, C-90 C-60, C-90 C-60, C-90 C-60, C-90 C-60, C-90
"Fe-Cr"	BASF FCR SONY Fe-Cr	C-60, C-90 C-60
"CrO <sub>2</sub> "	Technics XA MAXELL UDXL II SCOTCH MASTER II TDK SA	C-45, C-60, C-90 C-60 C-45, C-60 C-45, C-60

• SETTINGS OF THE BIAS-ADJUSTMENT CONTROL FOR VARIOUS BRANDS OF "LOW-NOISE" TAPE

• INSTÄLLNINGAR AV KONTROLLEN FÖR FÖRSPÄNNINGSJUSTERING FÖR OLKA MÄRKEN AV "LÄGBRUS" BÅND

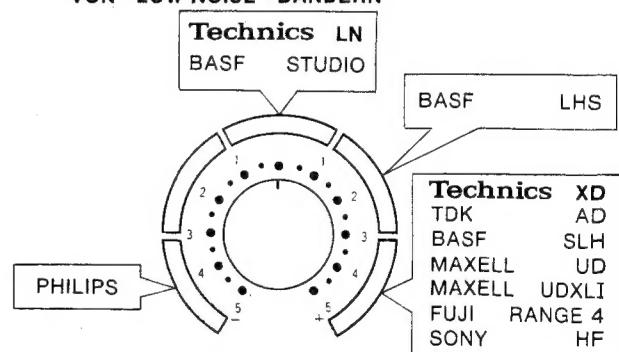
• POSITIONS DE LA COMMANDE DE REGLAGE DE LA POLARISTION POUR DIFFERENTES MARQUES DE BANDES "FAIBLE BRUIT"

• POSIZIONI DEL CONTROLLO DI REGOLAZIONE DELLA POLARIZZAZIONE PER I DIVERSI TIPI DI NASTRO "BASSO RUMORE"

• STANDEN VAN DE VOORMAGNETISATIESELECTOR VOOR VERSCHILLENDEN "LOW NOISE" BÅND

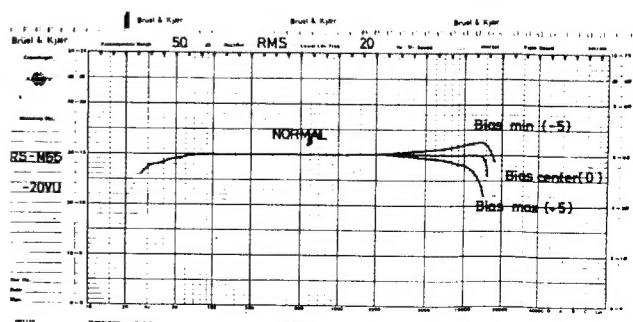
• INDSTILLINGER AF BIAS-JUSTERINGSKONTROLLEN FOR FORSKELLIGE MÄRKER "LOW-NOISE" BÅND

• STELLUNGEN DES VORMAGNETISIERUNGSWAHLSCHALTERS FÜR DIE VERSCHIEDENEN MARKEN VON "LOW-NOISE"-BÄNDERN



## 8

- FREQUENCY RESPONSE VS. BIAS LEVEL
- FREKVENSGÅNG VID ÄNDRING AV BIAS
- COURBE DE REPONSE LORS DU CHANGEMENT DE LA POLARISATION
- RISPOSTA DELLA FREQUENZA COL CAMBIAMENTO DEL LIVELLO DI POLARIZZAZIONE
- FREKWENTIEVERLOOP BIJ VERSCHILLENDEN VOORMAGNETISATIE
- FREKVENSGANG MED FORSKELLIGE BIAS JUSTERINGER FOR DET SAMME BÅND
- FREQUENZGANG BEI GEÄNDERTER VORMAGNETISIERUNGS-EINSTELLUNG



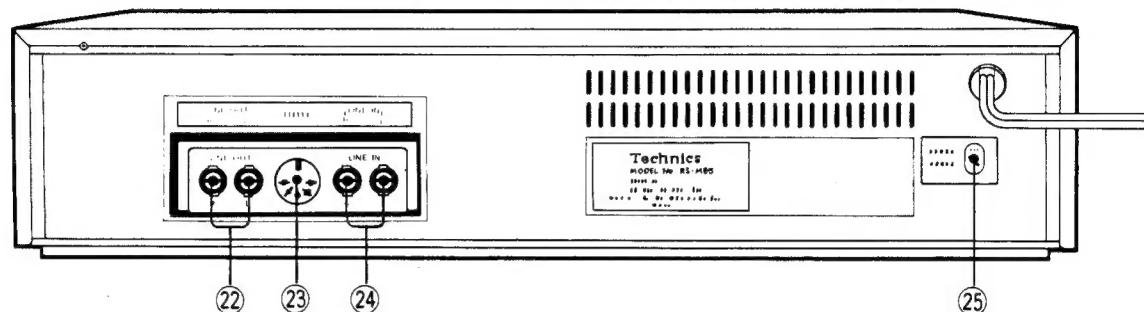
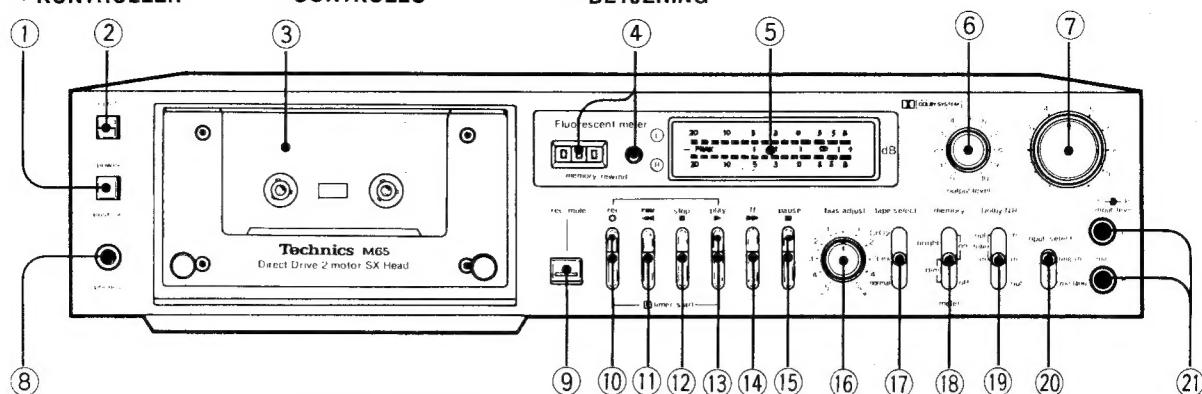
9

• CONTROLS  
• KONTROLLER

• LES COMMANDES  
• CONTROLLO

• BEDIENINGSKNOPPEN  
• BETJENING

• BEDIENUNGSELEMENTE



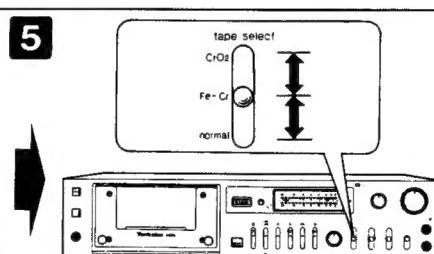
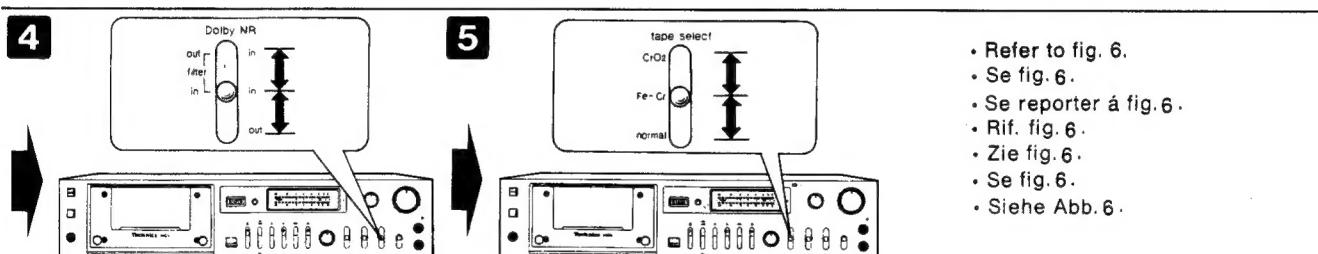
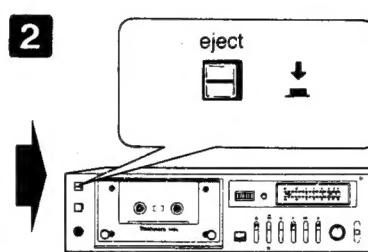
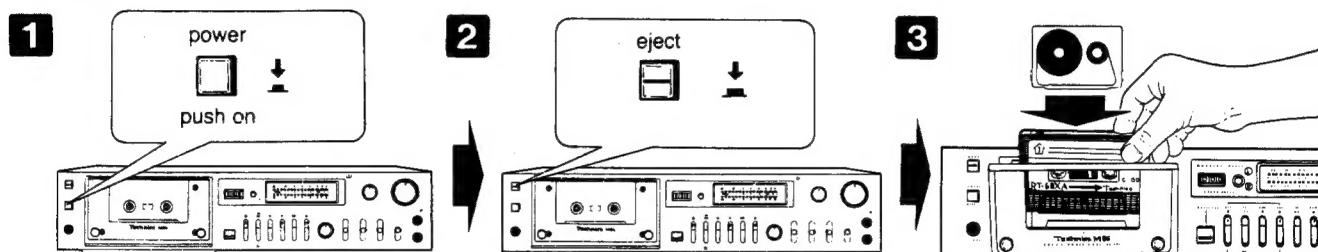
10

• PLAYBACK  
• AVSPĒLNING

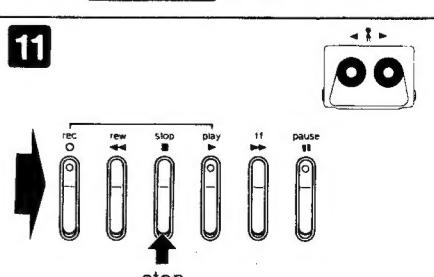
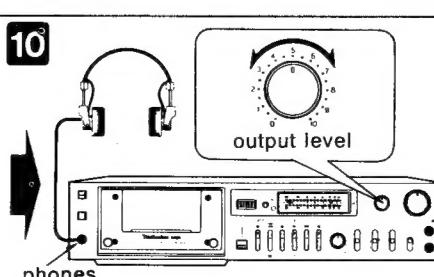
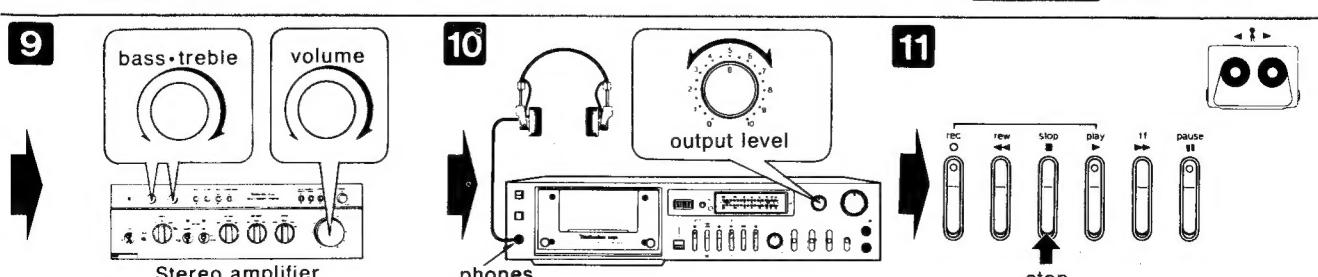
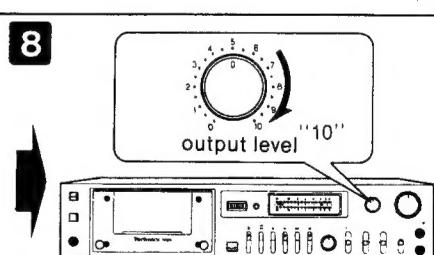
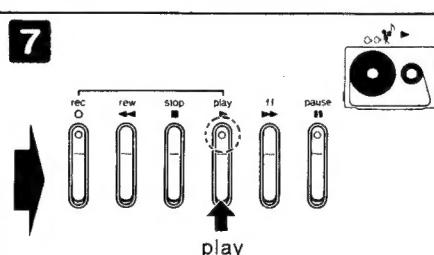
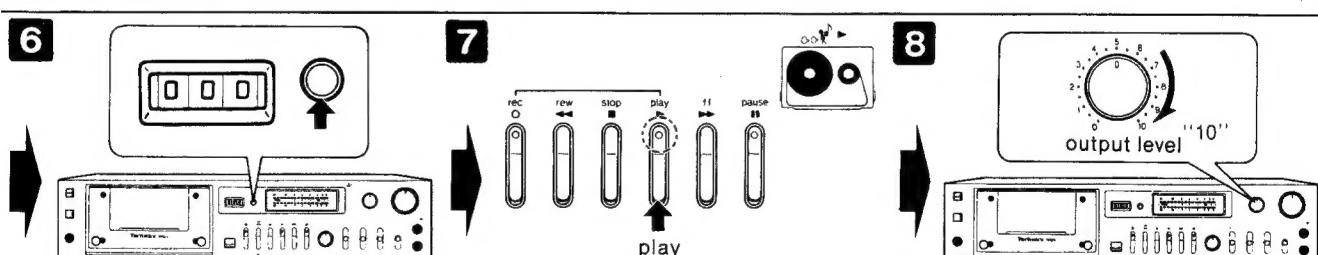
• LECTURE  
• RIPRODUZIONE

• TERUGSPELEN  
• AFSPILNING

• WIEDERGABE



• Refer to fig. 6.  
• Se fig. 6.  
• Se reporter à fig. 6.  
• Rif. fig. 6.  
• Zie fig. 6.  
• Se fig. 6.  
• Siehe Abb. 6.



# 11

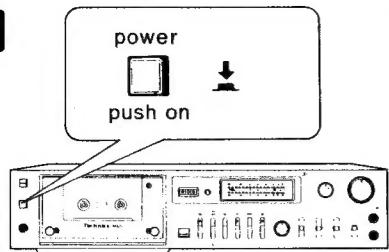
• RECORDING  
• INSPĒLNING

• ENREGISTREMENT  
• REGISTRAZIONE

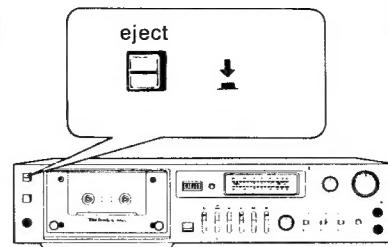
• OPNAME  
• INDSPILNING

• AUFNAHM

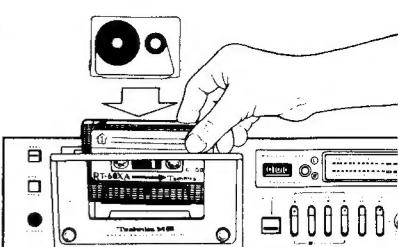
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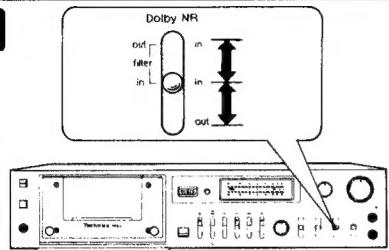
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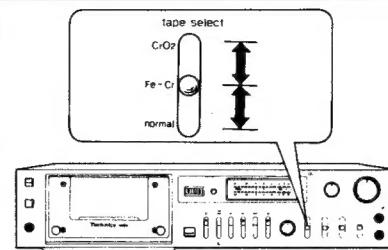
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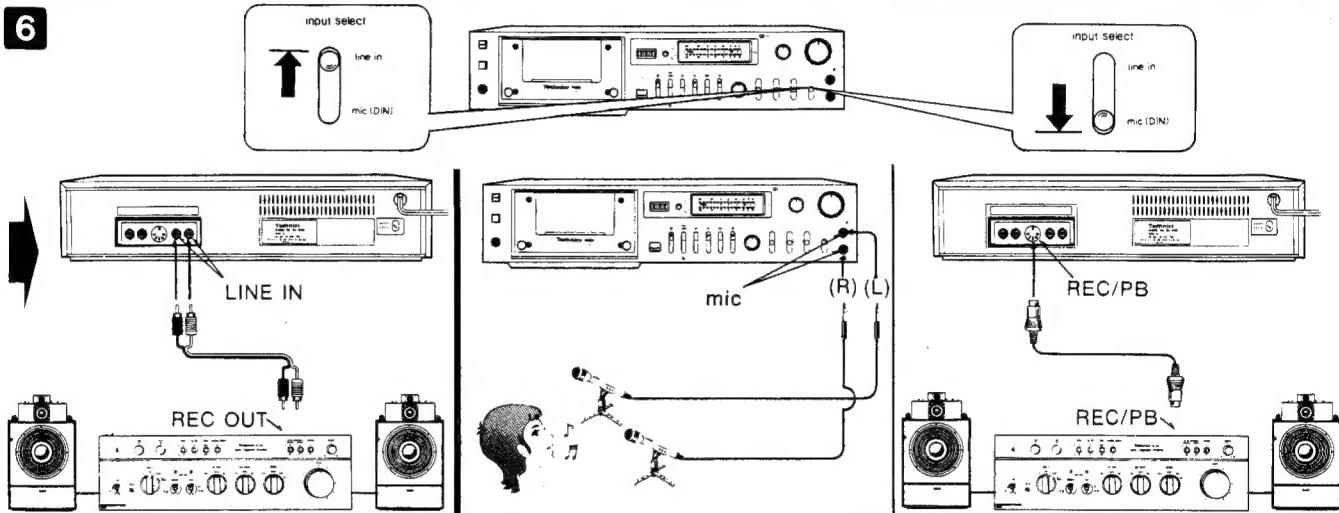


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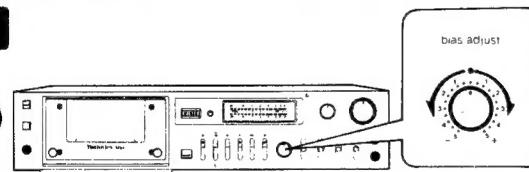


- Refer to fig. 6.
- Se fig. 6.
- Se reporter à fig. 6.
- Rif. fig. 6.
- Zie fig. 6.
- Se fig. 6.
- Siehe Abb. 6.

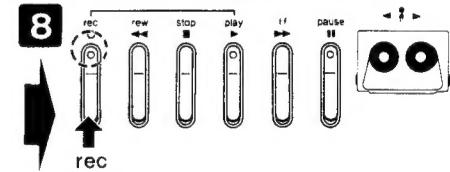
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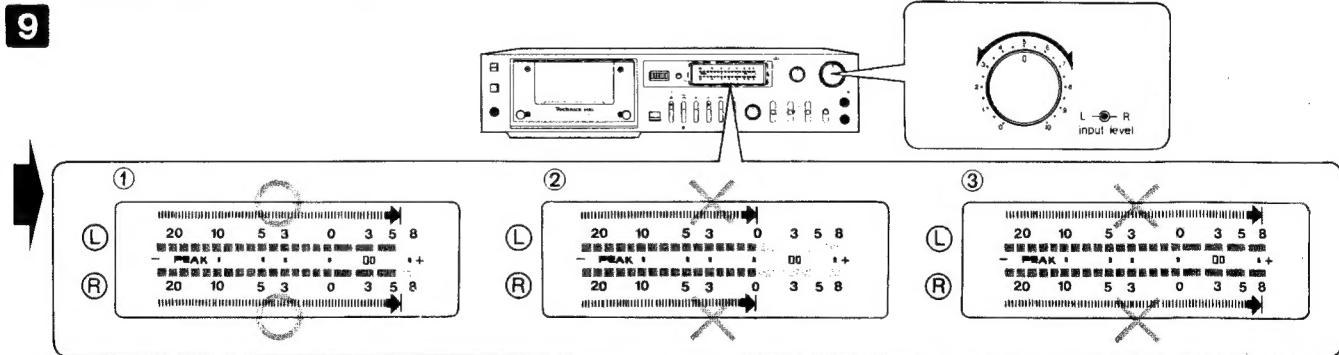
7



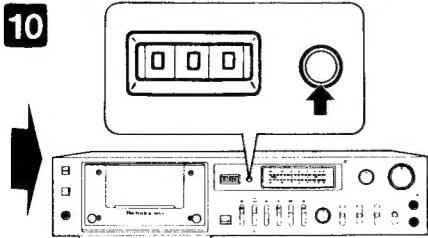
- See to page E-2.
- Se sid SV-2.
- Voir page F-2.
- Ved, pag. I-2.
- Zie naar blad N-2.
- Sé side D-2.
- Siehe Seite D-2.



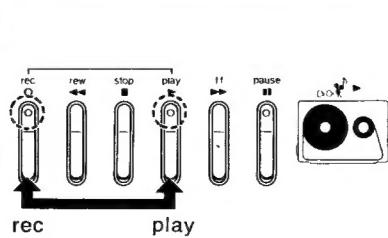
9



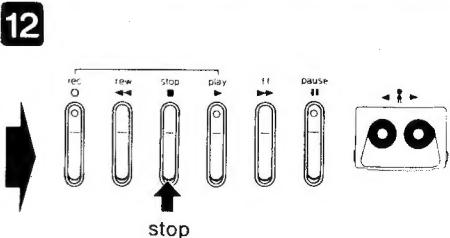
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11



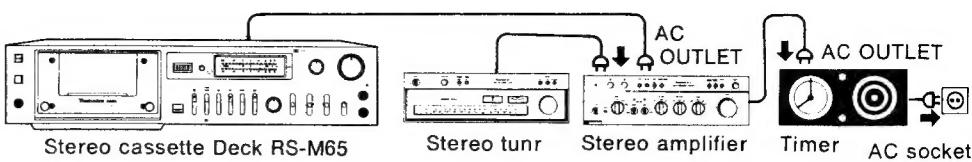
12



• TIMER RECORDING AND PLAYBACK  
 • INSPÉLNING OCH AVSPÉLNING MED TIDUR  
 • ENREGISTREMENT ET LECTURE AVEC MINUTERIE  
 • REGISTRAZIONE E RIPRODUZIONE USANDO IL  
 • "TIMER"

• OPNAME EN TERUG SPELEN MET BEHALP VAN EEN TIJDKLOK  
 • INSPILNING OG AFSPILNING MED PROGRAMUR  
 • AUFNAHME UND WIEDERGABE MIT EINEM ZEITSCHALTER

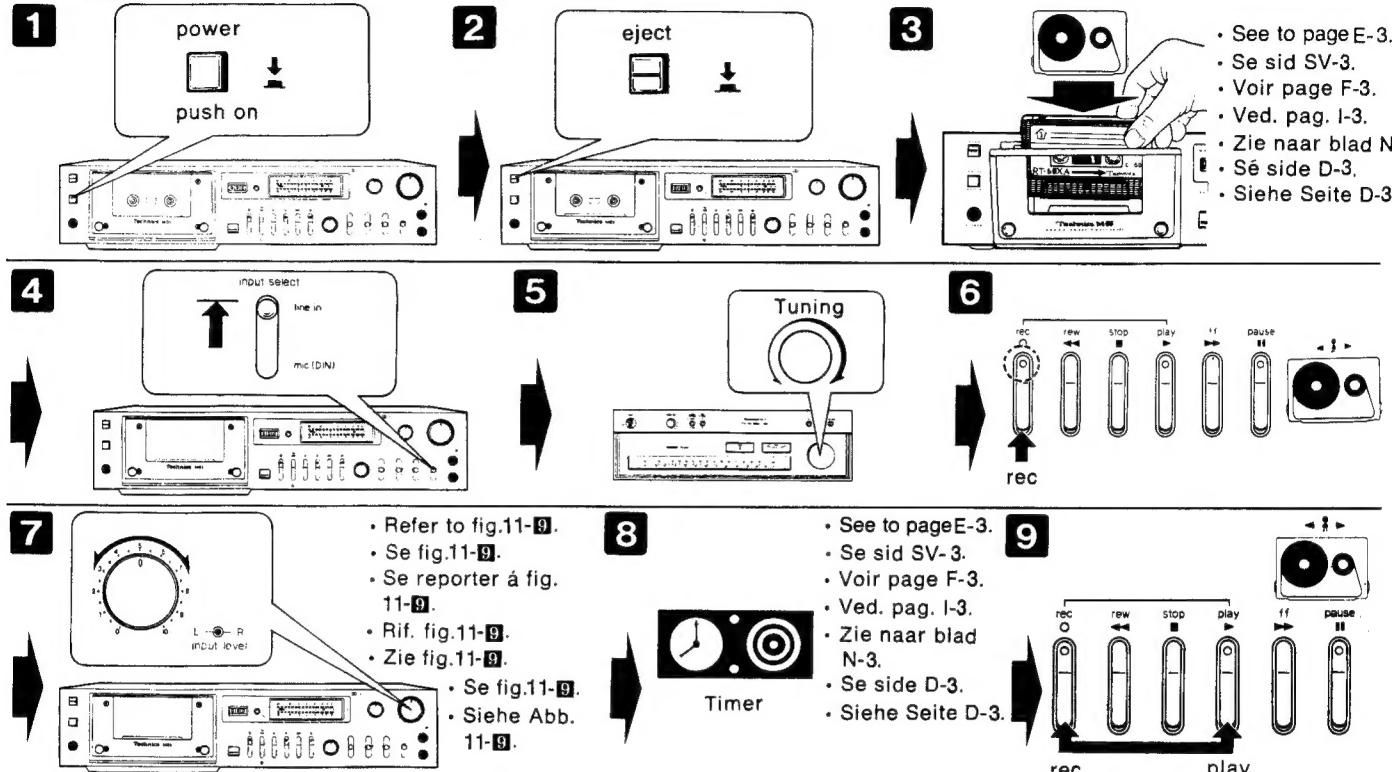
- Connections to the power source
- Nätanslutning
- Branchements à l'alimentation
- Connessioni alla sorgente elettrica
- Aansluitingen aan het voedings net
- Tilslutningsmuligheder på strøm for syning
- Anschluß ans Netz



■ Recording with a timer  
 ■ Indspilning med programur  
 ■ Enregistrement avec minuterie

■ Registratore col "timer",  
 ■ Opname met een tijdklok

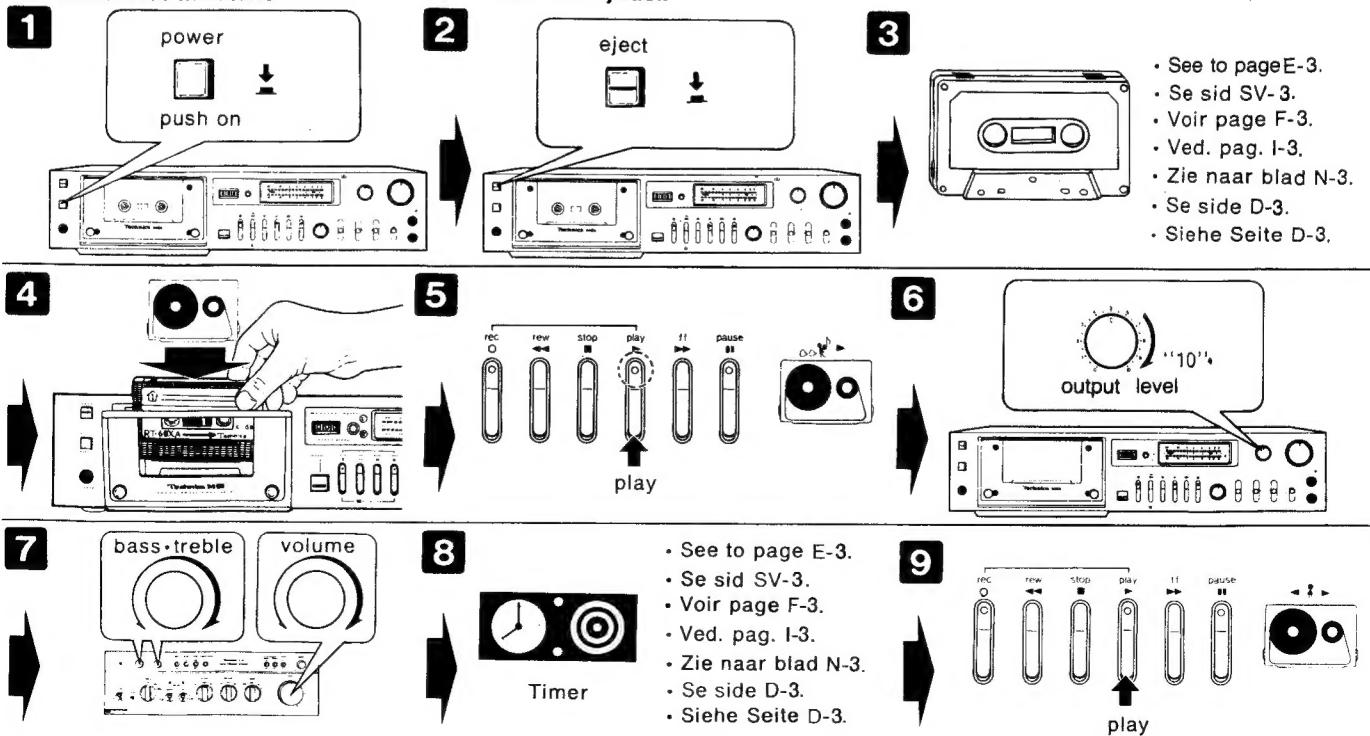
■ Inspeining med programur  
 ■ Aufnahme mit einem zeitschalter



■ Playback with a timer  
 ■ Avspelning med tidur  
 ■ Lecture avec minuterie

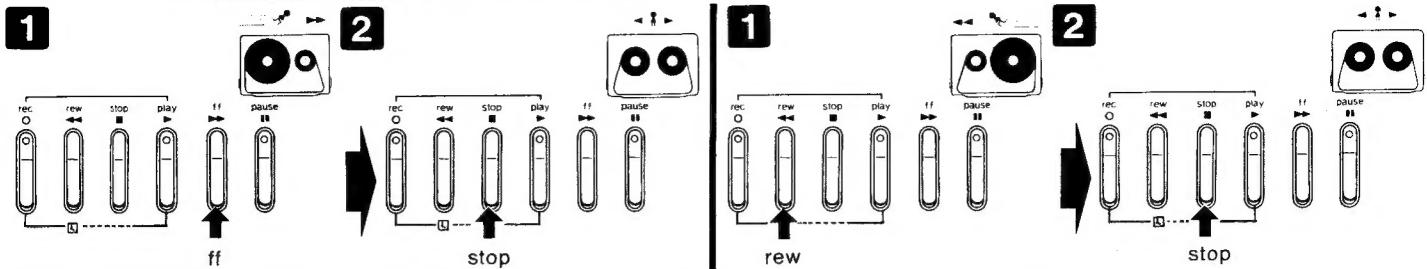
■ Riproduzione col "timer"  
 ■ Terug spelen met behulp van een tijdklok

■ Afspilning med programur  
 ■ Wiedergabe mit einem zeitschalter



# 13

- FAST FORWARD AND REWIND
- FRAM- OCH ÅTERSPOLNING
- BOBINAGE RAPIDE ET REBOBINAGE
- AVVOLGIMENTO RAPIDO E RIAVVOLGIMENTO



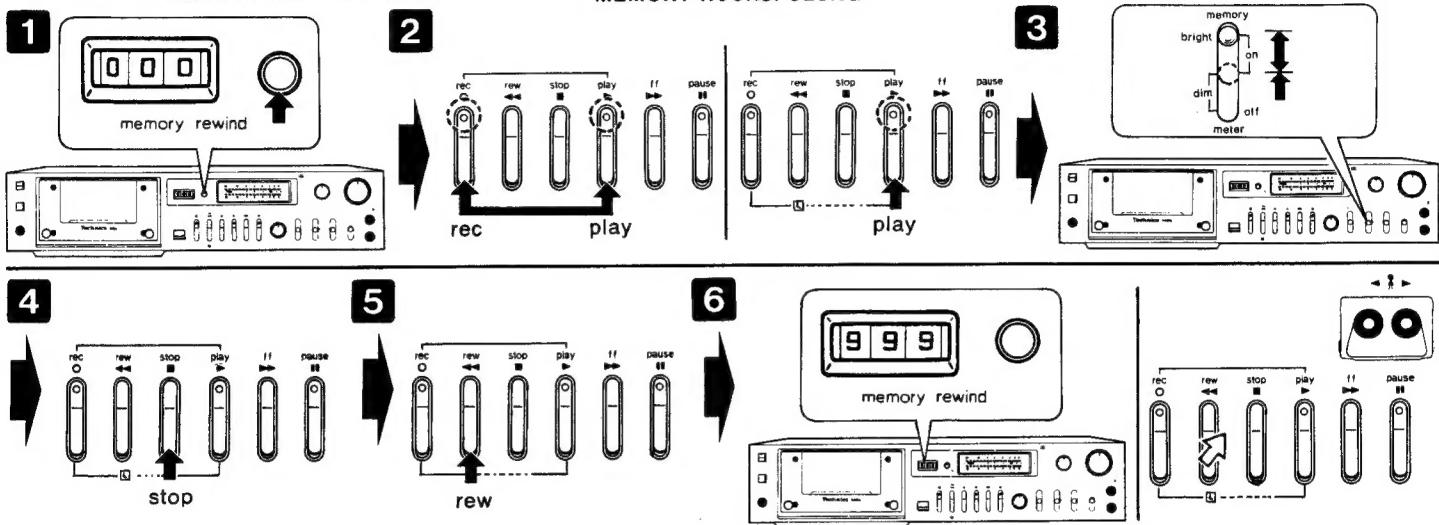
- SNEL OPSPOELEN EN TERUGSPOELEN
- HURTIG FREMSPOLING OG TILBAGESPOLING
- SCHAFFELVORLAUF UND RÜCKLAUF

# 14

- MEMORY REWIND
- ÅTERSPOLNINGSMINNE
- REBOBINAGE A MEMOIRE

- TERUGSPOELENHEUGEN
- TILBAGESPOLINGSHUKOMMELSE
- MEMORY-RÜCKSPULUNG

- RIAVVOLGIMENTO CON LA MEMORIA



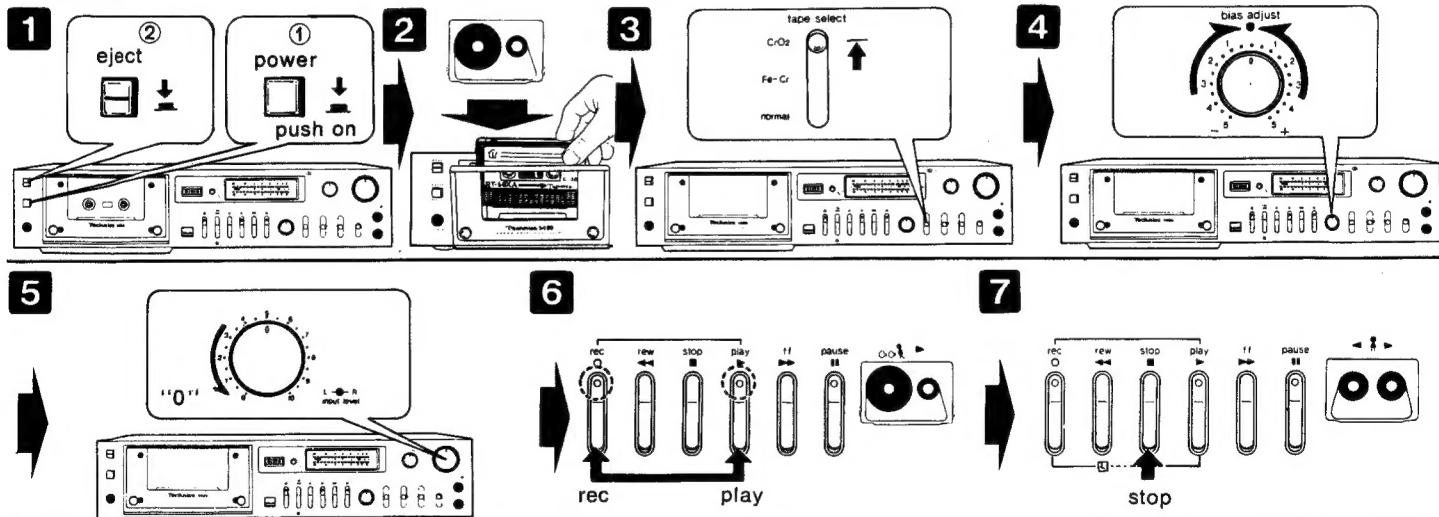
# 15

- ERASING
- RADERING

- EFFACEMENT
- CANCELLATURA (del nastro)

- UITWIJSSEN
- LÖSCHEN

- SLETNING



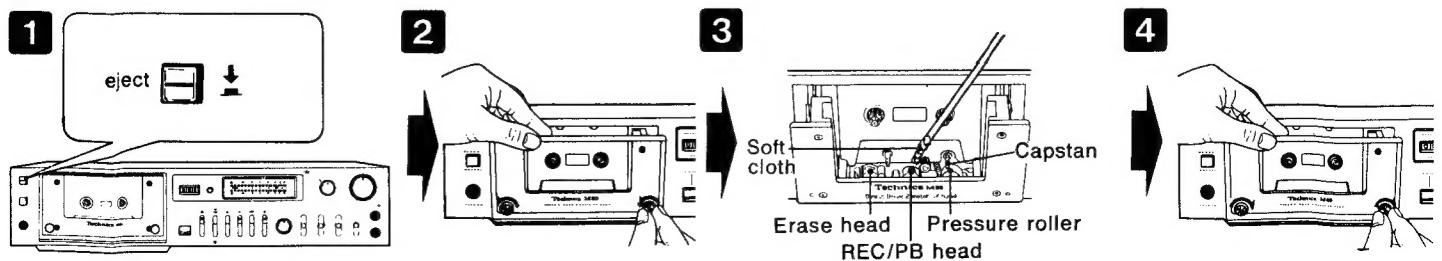
# 16

- MAINTENANCE
- VÅRD

- ENTRETIEN
- MANUTENZIONE

- ONDERHOUD
- VEDLIGEHOLDELSKE

- WARTUNG



## (ENGLISH)

We want to thank you for selecting the model RS-M65 Technics cassette tape deck for your recording and playback enjoyment. To obtain the maximum benefit of the many features of this deck, please carefully read these operation instructions.

## OPERATION NOTES

### 1. Horizontal placement

For best performance, place this unit in a horizontal position.

### 2. Location

Performance may be adversely affected by extremely hot [above 100°F. (35°C.)] or extremely cold [below 40°F. (5°C.)] locations, direct sunshine, or excessive vibration.

### 3. Power source

This unit features a DC operated motor which makes it possible to operate on 50 Hz or 60 Hz AC line voltage without any conversion. The voltage source should be within  $\pm 5\%$  of the unit's rated voltage. Variations in excess of  $\pm 10\%$  of rated voltage may cause uneven performance, or possible damage to the unit.

### 4. Clean the head assembly

One of the most important factors in the determination of good tape recorder performance is regular cleaning of the head assembly.

### 5. A "click" noise may be heard when the power switch is turned on or off. To avoid this, be sure to set the volume control of the amplifier to the minimum position.

## ABOUT CASSETTE TAPE (Refer to fig. 2.)

### Notes:

1. Do not pull the tape out of the cassette openings.
2. If the tape is loose in the cassette, the tape may become wound onto the pressure roller and result in breakage or damage. Tighten looseness of the tape, if necessary, by using a pencil as shown in the figure.
3. Avoid using C-120 cassette tape with this unit because this tape can easily become broken, stretched or twisted if not used with extreme care.
4. Avoid storing this unit in places where the temperature is high and/or where the humidity is high.
5. If the tape is very tightly wound or unevenly wound, fast forward it and then rewind it before use.

## CASSETTE INSERTION AND REMOVAL

(Refer to fig. 4.)

### Notes:

- \* Be sure the cassette is placed so that the edge with the holes is facing downward.
- The cassette holder cannot be closed if the cassette is inserted incorrectly.
- \* The operation buttons of this unit will not function if they are pressed while the cassette holder is open.

## CASSETTE EJECTION MECHANISM

Be careful not to press the Eject Button while the tape is moving, because the cassette will stop the operation and the holder will open.

## CONNECTION NOTES (Refer to fig. 5.)

1. Connections should be made in accordance with the connection diagram and the following instructions. When 2 microphones are used in order to record in stereophonic sound, be sure both of them have the same performance and specification standards.
2. Do not connect both a DIN connection cord and ordinary connection cords to this unit at the same time because to do so will result in abnormal oscillation from the amplifier, and recording and playback will be impossible.
3. Note that a DIN connection cord cannot be used to connect this unit with another tape deck because a complete circuit is not made.

### Location of this unit and stereo amplifier

If this unit is placed on top of the stereo amplifier or next to it, a "hum" noise may be heard during tape playback. Refer to the information below in order to avoid this.

- (1) If the stereo amplifier and this unit are placed one above the other, leave as much space as possible between them, and place them where there is the least amount of hum.
- (2) If the stereo amplifier and this unit are placed one beside the other, try reversing their positions, and place them where there is the least amount of hum.

## TAPE SELECTOR (Refer to fig. 6.)

In order to get the best performance from tape, and to record and playback with little distortion, the Tape Selector should be set as shown in figure 6.

Note that there may be a difference in sensitivity of 2 or 3 dB, depending on the type of tape.

## CONTROLS (Refer to fig. 9.)

- ① Power Switch (power)
- ② Eject Button (eject)
- ③ Cassette Holder
- ④ Tape Counter, Reset Button
- ⑤ FL (Fluorescent Level) Meters
- ⑥ Output Level Control (output level)
- ⑦ Input Level Controls (input level)
- ⑧ Headphones Jack (phones)
- ⑨ Record-Muting Switch (rec mute)
- ⑩ Record Button with Record Indication Lamp (rec) (○)
- ⑪ Rewind Button (rew) (◀◀)
- ⑫ Stop Button (stop) (■)
- ⑬ Playback Button with Playback Indication Lamp (play) (▶)
- ⑭ Fast-Forward Button (ff) (▶▶)
- ⑮ Pause Button with Pause Indication Lamp (pause) (II)
- ⑯ Bias-Adjustment Control (bias adjust)
- ⑰ Tape Selector (tape select)
- ⑱ Memory/Meter-Brightness Switch (memory) (meter)
- ⑲ Dolby Noise-Reduction Switch (Dolby NR)
- ⑳ Input Selector (input select)
- ㉑ Microphone Jacks (mic) (L, R)
- ㉒ Line Output Jacks (LINE OUT) (R, L)
- ㉓ Record/Playback Connection Socket (REC/PB)
- ㉔ Line input Jacks (LINE IN) (R, L)
- ㉕ Voltage Selector (VOLTAGE SELECTOR)

## PLAYBACK (Refer to fig. 10.)

### Notes:

1. Note that the operation buttons will not function until about 5 seconds have passed after the power is turned on.

The muting circuitry is used in order to make playback starts better.

2. This unit is designed so that the rated output of the Line-Output Terminals ("LINE OUT") is 700 mV when the Output-Level Control is set to its maximum position ("10") and the "0 dB" indication of the Fluorescent Level Meters is illuminated.
3. When listening through headphones, adjust the volume level by using the Output-Level Control of this unit.
4. When a record player, tuner or other equipment is connected to the stereo amplifier to which this unit is connected, it is suggested (for convenience when using the input selector of the stereo amplifier) that the output level of this unit and of other connected equipment be set to the same level.

### RECORDING (Refer to fig. 11.)

- \* Make the adjustment so that the meters illuminate until the "+5 dB" indication when the input signal level is the greatest, using the Input level controls. (Refer to fig. 11-①-①.)
- \* If the fluorescent level meters show an illuminated indication of only up to about "0 dB" when a loud sound is received, the recorded results will be rather noisy (with a poor signal-to-noise ratio). (Refer to fig. 11-②-②.)
- \* If, conversely, the fluorescent level meters continuously show an illuminated indication up to "+8 dB," the recorded results will be rather distorted. (Refer to fig. 11-③-③.)
- \* For recording of chamber music (such as a string quartet), and other music in which there is very little percussion sound, adjust so that the level is slightly lower (to an illuminated indication up to "+3 dB").

#### Notes:

1. After making a valuable recording, it is suggested that the accidental-erase prevention tabs be broken out, using a screwdriver or similar tool, in order to prevent accidental erasing of the recording by later re-recording over it.
2. For recording, therefore, be sure that the cassette has the tabs intact, or that the holes (where the tabs were) are covered by cellophane tape.
3. For recording, the Record Button must be pressed first, then the Playback Button.

\* For information concerning record muting, refer to page E - 2.

### FLUORESCENT LEVEL METERS

The fluorescent level meters of this unit are a new type of meters, and are completely different in principle than conventional level meters which have an indication needle. They can, however, be used in almost the same way for adjustment of the recording level. During playback they indicate the playback level, and during recording they indicate the recording level.

In addition, the meters of this unit indicate the signal peaks. By using this indication of signal peaks, it is possible to make recordings with a good signal-to-noise ratio, with little distortion, and with the tape recorded to its very limit of saturation, because they indicate a sensitively precise response to the pulsing sounds produced by percussion instruments.

\* The Fluorescent meters are designed to indicate in 2 colors to make instant recognition easy; yellow below "0 dB," and orange above "0 dB."

### Brightness Selection of the Fluorescent Meter

The Memory/Meter-Brightness Switch can be used to select either of two degrees of brightness of the FL Level Meter. When it is set to the "dim" position, the brightness is less, and brighter when it is set to the "bright" position.

### HOW TO USE THE BIAS-ADJUSTMENT CONTROL (Refer to fig. 7.)

This unit includes a system for minor adjustments of the recording bias. The system is designed so that optimum performance can be obtained when the Bias-Adjustment Control is set to its center "click-stop" position, and, therefore, it should be set to this position for best recording results under ordinary conditions.

A great many types of "low-noise, high-output" tapes have appeared recently, however, and the optimum bias value which will result in the flattest frequency response characteristic is, to be most precise, slightly different for each of them.

As a result, in order to obtain the finest possible performance from each of these types of "low-noise, high-output" tapes, a flatter frequency response characteristic can be obtained by making minor adjustment of the bias while referring to figure 7.

Although the Bias-Adjustment Control will function when the Tape Selector is set to either the "CrO<sub>2</sub>" position or the "Fe-Cr" position, it is suggested that this control be set to the center "click-stop" position when CrO<sub>2</sub> or Fe-Cr tape is used, because there are not a great many types of these tapes, and there is not much difference in the optimum bias setting for each type.

For brands of tape other than those shown in figure 7 the optimum bias value can be determined by recording (at a recording level of about -20 dB) the characteristic noise heard between FM broadcast stations, and then, when this recorded noise is played back, by adjusting the Bias-Adjustment Control to the position where the tone quality of the recorded noise (from the tape) and the tone quality of the same noise as heard directly from the tuner seem to be almost the same. This setting of the Bias-Adjustment Control, then, is the best position for use with such tape.

- \* The examples in figure 7 are based upon the Tape Selector set to the "normal" position.
- \* There may be a slight difference even for tapes of the same brand.
- \* The Bias-Adjustment Control has no effect during playback.

### RECORDING MUTING

The recording-muting feature is convenient to prevent recording such unwanted material as commercial messages when recording FM radio broadcasts, or the "click" noise heard when the stylus descends to the disc surface.

#### How to Use the Record-Muting Switch

When the recording of one tune has finished, immediately press the Record-Muting Switch and hold it, allowing the tape to continue moving for the desired time before stopping it. Then release the Record-Muting Switch. In this way, an unrecorded space can be made after the recording.

#### Note:

Sounds from the sound source can still be heard, and the Fluorescent Level Meters will continue to function, while the Record-Muting Switch is pressed, although no sound will be recorded on the tape.

## MONITORING

To listen to the recording as it is being made, simply connect stereo headphones (8Ω) to the Headphones Jack. You may also listen to the program as it is being recorded if your receiver or amplifier is equipped with a tape-monitor switch.

### Note:

In the same way as for playback, an amplifier can also be used for monitoring. Note however, if the recording is being made via a connection made to the Record/Playback Connection Socket, that monitoring can be done only with headphones.

## MULTIPLEX FILTER

FM stereo broadcast signals consist of a 19-kHz pilot signal and a 38-kHz sub-carrier. When a Dolby recording is made of an FM stereo broadcast, the Dolby circuitry will not function correctly because it detects signals leaking from the FM tuner. For this reason, the broadcast signals pass through a multiplex filter system to remove the unwanted signals, thus assuring that Dolby recordings can be correctly made.

When making a Dolby recording of an FM stereo broadcast, be sure to set the Dolby Noise-Reduction Switch to the "filter in" position.

## AUTOMATIC-STOP SYSTEM (Full-Auto-Stop System)

This unit has an automatic-stop system which, when the tape comes to its end during recording, playback, fast forward or rewind, releases the tape-transport mechanism automatically and places the unit into the stop mode.

\* Because the mechanism automatically stops when the tape comes to its end, both the operating parts and the tape itself are protected. This unit is free from problems such as pressure roller deformation resulting from leaving the unit in the stop condition (without pushing the Stop Button) for a long period of time.

## TIMER RECORDING AND PLAYBACK

### (Refer to fig. 12.)

\* Set the timer to the desired time. (Depending upon the type of timer, the power to the amplifier, tape deck and tuner will then be turned off.)

Refer to the operation instructions of the timer for further information.

\* This completes the preparations for timer recording or playback. At the desired time, the power will be turned on and the timer recording or playback will begin.

\* If a new recording is to be made on an already-recorded tape, erase the first part of the recording beforehand (in order to assure that none of the previous sound appears in the new recording), and then prepare the tape so that the new recording will begin from a part of the tape that has been completely erased.

## MEMORY REWIND (Refer to fig. 14.)

The "Memory Rewind" system can be used to conveniently return the tape automatically, during rewind, to any desired position.

## DOLBY RECORDING

This unit includes the Dolby noise-reduction system, which reduces tape noise to a remarkable degree.

Briefly, the system works as follows: At low sound levels (where tape noise is most noticeable), the high-frequency portion of the sound is recorded at a higher level. Tape noise is not amplified.

During playback, the level of only that portion of the signal which was increased at the time of the recording, as well as tape noise, is reduced by a like amount. This causes the signal to be heard at a normal level, and the tape noise to be reduced significantly.

## MAINTENANCE (Refer to fig. 16.)

Because the head assembly and the capstan are in constant contact with the moving tape, dirt or residue from the tape on these parts will decrease the sound quality. They should be cleaned after every 10 hours of use as shown in figure 16.

### Notes:

1. Don't allow magnetic materials, such as a screwdriver or a magnet, near the head assembly.
2. When cleaning, be careful not to bend the tape guides.
3. Don't attempt to clean the cabinet with alcohol, benzine or thinner, because it may damage the finish. If the cabinet is dirty, clean with a soft cloth dampened with a soap-and-water solution.

## TROUBLESHOOTING

If operation of this unit does not seem normal, check the following points before requesting service. If the trouble cannot in this way be determined and corrected, contact the dealer from whom the unit was purchased.

1. **After the tape cassette is inserted, the tape does not move when the Play Button is pushed.**
  - Is the power cord correctly connected?
  - Is the Power Switch pushed in to the "on" position?
2. **Although the tape moves, no sound is heard.**
  - Is the tape blank?
  - Are the connections of amplifier and speakers correct?
  - Are connection cords from this unit to the amplifier correctly connected?
  - Is the volume control of the connected amplifier set to the correct position?
  - Is the monitor switch of the connected amplifier set to the correct position?
3. **Sound is distorted.**
  - Is the recording level too high?
  - Is the playback output level too high?
  - Is the input impedance of the connected amplifier appropriate?
4. **The Record-Indication Lamp does not illuminate when the Recrd Button is pressed.**
  - Is the tape cassette inserted correctly?
  - Have the recording-prevention tabs of the cassette been removed?
5. **Tape moves, but no sound can be recorded.**
  - Is the Input Selector set to the incorrect position?
6. **Playback sound is hoarse or vibrates. Recorded sound is not clear.**
  - Are the head surfaces dirty?
  - Is foreign material adhered to the pressure roller and/or the capstan?

## SPECIFICATIONS

Track System:	4-track 2-channel stereo recording and playback
Tape Speed:	4.8cm/s (1 7/8 ips)
Wow and Flutter:	0.035% (WRMS), $\pm 0.10\%$ (DIN)
Frequency Response:	CrO <sub>2</sub> /Fe-Cr tape: 20~18,000 Hz 30~18,000 Hz (DIN) 30~16,000 Hz $\pm 3$ dB Normal tape: 20~16,000 Hz 30~16,000 Hz (DIN) 30~14,000 Hz $\pm 3$ dB
Signal-to-Noise Ratio:	Dolby NR in: 69 dB (above 5 kHz) Dolby NR out: 59 dB (signal level = max. recording level, Fe-Cr/CrO <sub>2</sub> type tape)
Fast Forward and Rewind Time:	Approx. 80 seconds with C-60 cassette tape
Inputs:	MIC; sensitivity 0.25mV, input impedance 47k $\Omega$ applicable microphone impedance 400 $\Omega$ ~10k $\Omega$ LINE; sensitivity 60mV, input impedance 56k $\Omega$
Outputs:	LINE; output level 700mV, load impedance 22k $\Omega$ over HEADPHONE; output level 75mV, load impedance 8 $\Omega$ 5p DIN type; input sensitivity 0.25mV, impedance 6.4k $\Omega$ output level 700mV, impedance 1.5k $\Omega$
Motors:	2-motor system Brushless FG servo controlled Direct-Drive motor for Capstan Drive 1-DC coreless motor for Reel-table drive
Heads:	2-head system 1-SX (Sendust Extra) head for rec/playback 1-double-gap ferrite head for erasure
Bias Frequency:	85 kHz
Power Requirements:	AC 110/125/220/240 V, 50~60 Hz (not necessary for conversion)
Power Consumption:	30 W
Dimensions (W x H x D):	43cm x 9.7cm x 34.7cm
Weight:	7.1 kg

Specifications are subject to change without notice.